CITY OF CINCINNATI
DEPARTMENT OF BUILDINGS AND INSPECTIONS
3300 Central Parkway
Cincinnati, Ohio 45225

(513) 352-3271

A

2000 INTERNATIONAL ENERGY CONSERVATION CODE SUBMITTAL FOR 1, 2, AND MULTIPLE FAMILY RESIDENCE 3 STORIES OR LESS IN HEIGHT

Project Address: _____

Section 1301.1 of the Ohio Building Code (OBC) states all new construction shall comply with the Energy Conservation requirements of Chapter 13, with the following exceptions: (Check which exception applies and attach supporting documentation.)

1. ❑ New construction which is not heated or cooled
2. ❑ New construction whose peak

Completion of this form, along with the supporting documentation, is intended to document compliance with the 2000 International Energy Conservation Code (IECC). Please attach sufficient documentation from the selected method of compliance below.

I. Section 502 IECC Exterior Envelope Requirements: Select a compliance approach

- ❑ MEC Check version 3.0 or better Compliance Report Attached (Software available at www.energycodes.gov)
- ❑ MEC Check Prescriptive Package Worksheet 2000 Version 3.0, Zone 11
- ❑ Ohio Energy Code Compliance Worksheet (See Attached Worksheet)
- ❑ IECC Prescriptive Package Worksheet (See Attached Worksheet)

II. Section IECC MEC Electrical Distribution Systems

A. Each dwelling unit in an R-2 use is separately metered
B. Submit a Lighting Power Budget for public areas of R-2 uses

III. Section 503 IECC, HVAC Equipment

A. Attach a heating and cooling equipment schedule listing efficiencies for other than National Appliance Energy Conservation Act (NAECA) complying equipment.
B. Thermostat temperature setting ranges are 55 degrees or lower for heating, 85 degrees F or higher for cooling, and for heating and cooling an adjustable deadband up to 5 degrees.
C. Ducts and pipes to be designed and insulated in accordance with Section 503.3.3 IECC.

IV. Section 504 IECC, Service Water Heating

A. Hot water heaters comply with the National Appliance Energy Conservation Act (NAECA).
B. Showers are equipped with flow control devices to limit hot water discharge to 2.5 GPM.

This project has been designed to comply with the above energy code requirements.

Signature (Architect or Engineer for R-1, R-2 and R-3 Use Groups Date

OHIO ENERGY CODE

Based on the 1992 CABO Model Energy Code

COMPLIANCE WORKSHEET

YOUR HOUSE	Insulation R-Value	A Area	System R_o-Value	R=¼ U=¼ UA
ROOF/CEILING (Description)				
1. Flat Ceiling (attic)		A	/R_o	=
2. Cathedral Ceiling		A	/R_o	=
3. Skylights		A	/R_o	=
4. Floor Cantilever		A	/R_o	=
Subtotals:		A		[5]
GROSS WALL Include basement wall area (avg) less than 50% below grade and all basement windows and doors				
6. Opaque Wall		A	/R_o	=
7. Opaque Wall		A	/R_o	=
8. Opaque Wall		A	/R_o	=
9. Floor Bands		A	/R_o	=
10. Door		A	/R_o	=
11. Door		A	/R_o	=
12. Door		A	/R_o	=
13. Window		A	/R_o	=
14. Window		A	/R_o	=
15. Basement Window		A	/R_o	=
16. Other		A	/R_o	=
Subtotals (Gross Wall)		A		[17]
FOUNDATION/FLOOR				
18. Slab Insulation		(PxD)	/R	[19]
Perim (P) (feet)				
Depth (D) (feet)				
20. Floor over Unheated Space		A	/R_o	[21]
22. Crawl Space Wall		A	/R_o	[23]
24. Basement Wall		A	/R_o	[25]
Opaque area of basement walls 50% or more below grade				
TOTAL UA				
UA FROM INSULATION TO BE INSTALLED:				
Lines [5] + [17] + [19] + [21] + [23] +[25]				= [Line 26]

CODE HOUSE (Chapter 1 Standard)		
HDD 5030		UA
ROOF/CEILING		
Max U_o	.031	
A (Total Area)	x	
Max UA Allowed	=	B.
GROSS WALL		
(To obtain UA for door and window area on your house,) use the "system" R- or U-value provided by the manufacturer for the entire window or door assembly. To get UA, multiply the total area of the rough openings (A) by the U-value, or divide the area by the system R-value.)		
	A-1/A-2	
Max U_o*	.141/.215	
A (Total Area)	x	
Max UA Allowed	=	D.
FOUNDATION/FLOOR		
A /R 4.30	=UA	F.
A xU$_o$ .05	=UA	H.
A xU .060		J.
A xU .099		L.
TOTAL UA		
MAX UA:		
Lines B + D + F + H + J + L	= [Line M]	

Line 26 (Your House Total) must be less than or equal to line M (Code House Total).

INSTRUCTIONS FOR USING THE TRADE-OFF WORKSHEET

The Tradeoff Worksheet compares "Your House" with a virtually identical house that complies with the MEC through the Component Performance evaluation process described in the previous chapter. If Your House uses equal or less energy than the "Code House", as calculated on the Tradeoff Worksheet, it complies with the MEC. The following line-by-line instructions will assist the user in completing the Tradeoff Worksheet.

First, enter the general information at the top of the Worksheet, including name, address, and legal description. Next, enter the HDD (heating degree days) for your location at the top of the Code House column.

Your House

LINE 1. Flat Ceiling (attic): Enter the R-value of the attic insulation you will install under "Insulation R-Value." Consult your building plans and calculate the area of flat ceiling below attics, and enter under "A Area." From Table 5, page 8, obtain the system R_0-value for the insulation and truss/joist spacing that you are using. Divide the area of flat ceiling by the system R_0-value to obtain the UA, and enter it under "UA."

LINE 2. Cathedral Ceiling: Enter the R-value of the cathedral ceiling insulation you will install under "Insulation R-Value." Consult your building plans and calculate the area of cathedral ceiling being sure to measure it on the slope. Do not include skylight areas. Enter the total area at "A Area." From Table 6, page 9, obtain the system R_0-value for the insulation and truss/rafter spacing that you are using. Divide the actual area of cathedral ceiling by the system R_0-value to obtain the UA, and enter it under "UA."

LINE 3. Skylights: Obtain the R_0-value (average of the entire unit) or the U_0 of the skylights you are using from the manufacturer. (If U_0, divide the U_0 into 1 to obtain the R_0.) Enter total skylight area (from your building plans) under "A Area," and R_0 under "system R_0-value." To obtain UA, divide the area by the R_0 (or multiply the area by the U_0). Write the UA value in the "UA" column.

LINE 4. Floor Cantilever: Enter the R-value of the insulation you will install in the floor cantilever (i.e., floor over exterior spaces) under "Insulation R-Value." Consult your building plans and calculate the area of cantilever. Enter at "A Area." From Table 6, page 9, obtain the system R_0-value for the insulation and joist spacing you are using. Divide the area of floor cantilever by the system R_0-value to obtain the UA, and enter under "UA."

LINE 5. ROOF/CEILING Subtotals. Add the areas to obtain an area subtotal. Then add lines 1-4 to obtain the total UA for the ROOF/CEILING assembly. Enter the total UA on line 5.

LINES 6-8. Opaque Wall: This section includes above grade walls (excluding windows and doors) plus the floor-to-ceiling area of any basement wall that is less than 50% below grade. Enter the R-value of the wall insulation you will install under "Insulation R-Value." Consult your building plans and calculate the area of the opaque walls (total area minus window and door area). Enter the total at "A Area." From Table 1, page 6, or Table 2, page 7, obtain the system R_0-value to obtain the UA. Enter it under "UA." Use lines 7 and 8 for different wall constructions that must be calculated separately.

LINE 9. Floor Bands: Enter the R-value of the insulation you will install against the floor bands under "Insulation R-Value." Consult your building plans, calculate the area of the bands (joist height times length of perimeter for each band), and enter the area at "A Area." From Table 1, page 6, obtain the System R_0-value for the insulation and sheathing you will use. Divide the area of floor band by the System R_0-value to obtain the UA, and enter the answer under "UA."

LINE 10-12. Doors: Enter the types and locations of exterior doors you are installing (insulated steel, wood, etc.), the areas of each type of door, and the R_0 of each type of assembly. Include exterior doors in conditioned basements. Obtain the R_0 for each type of door, including the frame, from the manufacturer. If the manufacturer does not provide the R_0, use one of the typical values included on Table 4, page 8. Divide area by R_0 to obtain UA. Enter the answer under "UA." If door glazing is not included in the manufacturer's R_0, subtract the glazing area from the door area and include it under "windows."

LINE 13-14. Windows: Enter descriptions of the windows you are installing (wood, vinyl, aluminum, number of layers of glass, etc.), the area of each type of window and the corresponding R_0, including the frame. Divide area by R_0 to obtain UA, and enter the answer under "UA." If the manufacturer provides a U_0, multiply the U_0 by the area to obtain the UA. If you do not know the R_0-value of a window, typical values are included on Table 3, page 7.

LINE 15. Basement Windows: Windows in conditioned basements are required to be included in the Gross Wall Area. Follow the instructions for lines 13-14.

LINE 16. Other: Include here any other assembly having a unique U_0. See pages 11-12 for instructions on calculating R-value of assemblies not included in Tables 1 through 9.

LINE 17. GROSS WALL Subtotals. Add the areas to obtain a area subtotal. Then add lines 6-16 to obtain the total UA for the GROSS WALL assembly and enter the total UA on line 17.

LINE 18. Slab: Determine the lineal feet of the perimeter of the slab, and enter it at "perim (P)." Enter the depth of slab edge insulation, 2-feet wide insulation is required for climates with between 2500 and 6000 HDD. Over 6000 HDD, 4-foot-wide insulation is required. Enter after "Depth (D)." Multiply the perimeter (P) by the insulation depth (D) to obtain the insulation area A. Enter it at "(P x D) Area." Enter the R-value you plan to install under "Insulation R-value" and "system R_0-value." Divide the area A by the system R-value to obtain UA and enter the answer under "UA" on line 19.

LINE 20. Floor Over Unheated Space (crawl space or basement without a positive heat supply): Enter the R-value of the floor insulation you will install under "Insulation R-Value." Consult your building plans and calculate the area of the floor. Enter at "A Area." From Table 7, page 9, obtain the "system R_0-value." Divide the floor area by the system R_0-value to obtain the UA, and enter it under "UA" on line 21.

LINE 22. Crawl Space Wall: Enter the R-value of the crawl space wall insulation you will install under "Insulation R-Value." Consult your building plans and calculate the area of the crawl space walls. Enter at "A Area." From Table 8, page 11, obtain the system R_0-value. Divide the area by the system R_0-value to obtain the UA, and enter it under "UA" on line 23.

LINE 24. Basement Wall: Only the opaque portion of basement walls that are 50% or more below grade are considered here. All basement windows and doors as well as the opaque portion of basement walls that are less than 50% below grade are included in the "Gross Wall" category. Enter the R-value of the basement wall insulation you will install under "Insulation R-Value." Consult your building plans and calculate the opaque area of the basement walls. Enter at "A Area." From Table 9, page 11, obtain the system R_0-value. Divide the basement wall area by the system R_0-value to obtain the UA, and enter it under "UA" on line 25.

LINE 26. Total UA (UA from insulation to be installed): Add the subtotals on lines 5, 17, 19, 21, 23, and 25, and enter the grand total on line 26.

Code House

From Table 10, pages 20-21, Calculated MEC Requirements for Envelope Components, find the appropriate maximum U-values and minimum slab foundation R-values required by the code for your HDD climate, and enter them after "Max. U_0." "U." or "R" on the Code House side of the worksheet. If your HDD falls between two HDD numbers in table 10, use the U_0-values for the higher HDD figure. The code requirements for exterior walls are less stringent for multi-family buildings than for one- and two-family buildings. For detached one- and two-family dwellings, use the values under A-1. For all other residential buildings three stories or less in height, use the values under A-2.

Enter the area totals from the Your House side of the worksheet on the Code House side in the appropriate locations. Multiply the U_0-values times the Areas (or divide the slab area by the insulation R-value) to get the maximum allowable UA for each category (Roof/Ceiling, Gross Wall, and Foundation/Floor types).

Add the subtotals on lines B, D, F, H, J and L, and enter the grand total on line M.

The Comparison

If the value in line 26 is less than or equal to that on line M, you meet the code. If the value on line 26 exceeds that on line M, you fail. In this case you must increase some of the R-values or reduce some of the areas of components having low R-values until you meet or exceed the value in line M, and recalculate your totals.

BEA

IECC Prescriptive Package Worksheet
For Residential Buildings 3 Stories or Less in Height

International Energy Conservation Code (IECC)

Building Address _____

PROPOSED

Glazing Area

100 X _____ (Glazing Area (f)) ÷ _____ (Gross Wall Area) = _____ % (Proposed Glazing Area)

R-Value (g)

Description	Proposed R-Value (e)
Ceilling (a)	R-
Wall	R-
Floor Over Unconditioned Space	R-
Floor Over Outside Air	R-
Basement Wall (d)	R-
Slab Floor	R-
Crawl Space Wall	R-

U-Factor

Description	Proposed U-Factor
Glazing (c)	U-
Opaque Door (b)	U-

REQUIRED

A-1 / 15%
A-2 / 25%
Maximum Glazing Area

Minimum R-Value (e)
R- 38
R- 18
R- 19
R- 38
R- 9
R- 6
R- 17

Maximum U-Factor
U-.45
U-0.35

From attached Table 502.2.4

_____ %
Maximum Glazing Area

Minimum R-Value (e)
R-
R-
R-
R-
R-
R-
R-

Maximum U-Factor
U-
U-0.35

(a) Where the construction technique allows the required R-value of ceiling insulation to be obtained over the exterior wall top plate, R-30 shall be permitted to be used where R-38 is required in the table.

(b) One opaque door shall be exempt from this U-factor requirement.

(c) **Fenestration exemption.** Up to 1 percent of the total glazing area shall be exempt from the "Glazing U-factor"

(d) Where basement walls are required to be insulated, the required R-value shall be applied from the top of the basement wall to a depth of 10 feet (3048 mm) below grade or to the top of the basement floor, whichever is less.

(e) The insulation R-values listed for each package are the minimum allowed for that package. R-value requirements refer to the R-value of the insulation only. Wall and ceiling insulation R-values refer to the sum of the stud cavity insulation plus insulated sheathing (if used).

(f) The area of a glazing assembly is the interior surface area of the entire assembly, including glazing, sash, curbing and other framing elements. The areas of the glazing assemblies (including windows, sliding glass doors, skylights, and windows of conditioned basements) must be included when computing the total glazing area.

(g) The R-valves are based on wood frame construction. See attached tables for the equivalent R-valves for steel framed walls and high-mass walls.

(h) See section 502.2.5 IECC for additions which allows up to 40% glazing area.

TABLE 1
Wood Frame Wall Assemblies

FRAMING	R-VALUE CAVITY INSULATION	R-VALUE SHEATHING	SYSTEM R_o -VALUE
2x4 16" o.c.	11	non-insul	11.8
	13	non-insul	13.1
		3	15.7
		5	17.7
		7	19.7
	15	non-insul	14.3
		3	17.0
		5	19.0
		7	21.0
2x6 16" o.c.	19	non-insul	17.3
		3	20.0
		5	22.0
		7	24.0
	21	non-insul	19.2
		3	22.0
		5	24.0
		7	26.0
2x6 24" o.c.	21	non-insul	20.1

Note: System R_o -Value based on typical interior finish of gypsum wallb lath, and plaster, or 3/8" wood paneling, and typical exterior finish of stucco, wood, vinyl, aluminum or plywood siding, or brick veneer.

TABLE 2
Steel Frame Wall Assemblies

FRAMING	R-VALUE CAVITY INSULATION	R-VALUE SHEATHING	SYSTEM R_o VALUE
2x4 16" o.c.	11	non-insul	8.0
	13	non-insul	8.5
		3	10.9
		5	12.9
		7	14.9
	15	non-insul	9.0
		3	11.4
		5	13.4
		7	15.4
2x4 24" o.c.	11	non-insul	9.1
		3	11.5
		5	13.5
		7	15.5
	13	non-insul	9.7
		3	12.1
		5	14.1
		7	16.1
	15	non-insul	10.3
		3	12.7
		5	14.7
		7	16.7
2x6 16" o.c.	19	non-insul	9.6
		3	11.9
		5	13.9
		7	15.9
	21	non-insul	9.9
		3	12.3
		5	14.3
		7	16.3
2x6 24" o.c.	19	non-insul	11.1
		3	13.5
		5	15.5
		7	17.5
	21	non-insul	11.6
		3	13.9
		5	15.9
		7	18.0

Note: System R_o -Value based on 1/2" gypsum interior, sheathing as shown, where non-insulative sheathing is 1/2" plywood, vinyl or aluminum siding.

TABLE 3
Performance of Typical Glazing Products

FRAME/GLAZING FEATURES	SINGLE PANE U-VALUES	DOUBLE PANE U-VALUES
Metal Without Thermal Break - Operable	1.30	0.87
Metal Without Thermal Break - Fixed	1.17	0.69
Metal With Thermal Break- Operable	1.07	0.67
Metal With Thermal Break - Fixed	1.11	0.63
Metal Clad Wood - Operable	0.98	0.60
Metal Clad Wood - Fixed	1.05	0.58
Wood/Vinyl - Operable	0.94	0.56
Wood/Vinyl - Fixed	1.04	0.57
Note: The values provided are for informational purposes only. For actual performance consult the product manufacturer or representative.		

TABLE 4
Exterior Door Thermal Performance

TYPE	WITHOUT STORM R-VALUE	WITH STORM R-VALUE
Steel doors, 1 3/4" thick, with foam core	2.86	-
Steel doors, 1 3/4" thick, without foam core	1.67	-
Wood Door, 1 3/4" thick, panel (7/16")	1.85	2.78
Wood Door, 1 3/4" thick, hollow core flush	2.17	3.13
Wood Door, 1 3/4" thick, panel (1 ¼" panel)	2.56	3.57
Wood Door, 1 3/4" thick, solid core flush	2.5	4.00
Note: The values provided are for information purposes only. For actual performance consult the product manufacturer or representative.		

TABLE 5
Flat Ceilings

R-VALUE OF INSTALLED INSULATION	SYSTEM R_c VALUE	
	TRUSSES[1] 24" O.C.	JOISTS[2] 16" O.C.
19	20.1	20.0
22	23.0	22.2
26	27.1	26.4
30	31.1	30.5
38	39.1	38.5
49	50.1	49.5
1. Insulation must cover the bottom cord. 2. Insulation level deeper than joist dimension shall cover joist.		

TABLE 6
Cathedral Ceiling Assemblies

R-VALUE OF INSTALLED INSULATION	SYSTEM R_c VALUE[1]		
	2X8	2X10	2X12
19	20.0	20.0	20.0
22	22.3	22.9	22.9
26	-[2]	26.2	26.2
30	-[2]	29.9[3]	30.0[3]
38	-[2]	-[2]	37.5[3]
All assemblies allow 1" ventilation space between insulation and roof deck.			
1. System R-values can be increased with insulative sheathing between the gypsum board and framing.			
2. Insufficient room.			
3. High performance cathedral batt: R30 nominal 8 ½" - 8 ¼", R38 nominal 10".			

TABLE 7
Floor Assemblies

R-VALUE OF INSTALLED INSULATION	SYSTEM R_o -VALUE
11	12.5
13	14.1
19	20.1
30	29.4
38	36.6

TABLE 8
Crawl Space Wall Assemblies

R-VALUE OF INSTALLED INSULATION[1]	SYSTEM R_o -VALUE[2]
0	1.7
3	4.7
4.5	6.2
6	7.7
10	11.7
11	12.7
13	14.7
19	20.7
30	31.7
1. Insulation in this table is interior draped batt or blanket materials.	
2. If exterior insulative sheathing materials are chosen, the assembly R_o -value can be approximated by adding the rated R-value plus the thermal resistance of the block/concrete structure and air film, equivalent to a value of R-1.7.	

TABLE 9
Basement Wall Assemblies

R-VALUE OF INSTALLED INSULATION[1]	FULL WALL SYSTEM R_o -VALUE[2]
0	1.7
3 (¾" furring)	4.7
4.5 (wrap)	6.2
6 (board)	7.7
10	11.7
11	13.0
13	14.4
15	16.5
19 (2x6)	19.3
21 (2x6)	22.1
1. Insulation in this table is interior to the foundation wall in a 2x4" stud cavity as indicated. Studs are 24" O.C. unless otherwise noted.	
2. Exterior insulative sheathing materials result in assembly R_o -value determined by the rated sheathing R-value plus the thermal resistance of the block/concrete structure and air film, equivalent to a value of R-1.7.	

TABLE 502.2.4
PRESCRIPTIVE BUILDING ENVELOPE REQUIREMENTS, FOR LOW RISE RESIDENTIAL BUILDINGS

% GLAZING AREA	MAXIMUM	MINIMUM (Based on wood framing)					
	Glazing *U*-factor	Ceiling *R*-value	Exterior wall *R*-value	Floor *R*-value	Basement wall *R*-value	Slab perimeter *R*-value and depth	Crawl space wall *R*-value
A-1/8%	.52	R-30	R-13	R-19	R-9	R-7, 2 ft	R-16
12%	.45	R-38	R-16	R-19	R-9	R-6, 2 ft	R-16
15%	.45	R-38	R-18	R-19	R-9	R-6, 2 ft	R-17
18%	.37	R-38	R-16	R-19	R-9	R-7, 2 ft	R-17
20%	.36	R-38	R-19	R-19	R-9	R-6, 2 ft	R-16
25%	.29	R-38	R-19	R-19	R-9	R-6, 2 ft	R-17
A-2/20%	.50	R-26	R-13	R-11	R-5	R-0	R-6
25%	.52	R-30	R-13	R-11	R-5	R-0	R-6
30%	.45	R-38	R-13	R-19	R-10	R-8, 2 ft	R-18

16-INCH O.C. STEEL-FRAMED WALL EQUIVALENT *R*-VALUES

WOOD-FRAMED WALL *R*-VALUE [a]	EQUIVALENT STEEL-FRAMED WALL CAVITY AND SHEATHING *R*-VALUE
R-13	R-11+R-5, R-15+R-4, R-21+R-3
R-14	R-11+R-6, R-13+R-5, R-19+R-4
R-15	R-11+R-6, R-15+R-5, R-19+R-4
R-16	R-11+R-8, R-15+R-7, R-21+R-6
R-17	R-11+R-9, R-13+R-8, R-19+R-7
R-18	R-11+R-9, R-15+R-8, R-21+R-7
R-19	R-11+R-10, R-13+R-9, R-19+R-8, R-25+R-7

24-INCH O.C. STEEL-FRAMED WALL EQUIVALENT *R*-VALUES

WOOD-FRAMED WALL *R*-VALUE [a]	EQUIVALENT STEEL-FRAMED WALL CAVITY AND SHEATHING *R*-VALUE
R-13	R-11+R-4, R-15+R-3, R-19+R-2
R-14	R-11+R-5, R-13+R-4, R-15+R-3, R-21+R-2
R-15	R-11+R-5, R-13+R-4, R-19+R-3, R-21+R-2
R-16	R-11+R-7, R-13+R-6, R-19+R-5, R-25+R-4
R-17	R-11+R-8, R-13+R-7, R-15+R-6, R-21+R-5
R-18	R-11+R-8, R-13+R-7, R-19+R-6, R-25+R-5
R-19	R-11+R-9, R-13+R-8, R-15+R-7, R-21+R-6

HIGH-MASS WALL EQUIVALENT *R*-VALUES
INSULATION PLACED ON THE EXTERIOR OF THE WALL OR WITH INTEGRAL INSULATION

WOOD FRAMED WALL *R*-VALUE [a]	EQUIVALENT HIGH-MASS WALL *R*-VALUE
	HDD 4,000-5,499
R-11	R-7
R-13	R-8
R-14	R-8
R-15	R-8
R-16	R-8
R-17	R-9
R-18	R-9
R-19	R-10

HIGH-MASS WALL EQUIVALENT *R*-VALUES
INSULATION PLACED ON THE INTERIOR OF THE WALL

WOOD FRAMED WALL *R*-VALUE [a]	EQUIVALENT HIGH-MASS WALL *R*-VALUE
	HDD 4,000-5,499
R-11	R-11
R-13	R-12
R-14	R-12
R-15	R-13
R-16	R-13
R-17	R-14
R-18	R-15
R-19	R-16

R-Value/U-Factor Weighted Average Worksheet

(optional)

Assembly:

Component Description	R-Value	U-Factor (1 ÷ R-Value)	Area	U-Factor x Area (UA)
			Total Area =	Total UA =

_____ ÷ _____ = _____

Total Area / Total UA / Weighted Average R-Value

_____ ÷ _____ = _____

Total UA / Total Area / Weighted Average U-Factor

Assembly:

Component Description	R-Value	U-Factor (1 ÷ R-Value)	Area	U-Factor x Area (UA)
			Total Area =	Total UA =

_____ ÷ _____ = _____

Total Area / Total UA / Weighted Average R-Value

_____ ÷ _____ = _____

Total UA / Total Area / Weighted Average U-Factor

Glazing Area/U-Factor Trade-Off Worksheet
(optional)

The glazing area and U-factor requirements for any prescriptive package can be altered to better meet your building design. Any combination of area and U-factor that satisfies the following relationship can be used:

New Area x New U-Factor • Package Area x Package U-Factor

Where *Package Area* and *Package U-Factor* are the area and U-Factor in the prescriptive package you have selected and *New Area* and *New U-Factor* are your altered glazing and U-factor combination.

Fill in the following blanks and attach this worksheet to the *Prescriptive Package Worksheet.* See the back side of this worksheet for examples.

Zone Number _____ Package Number _____

IECC Edition _____

Package Glazing Requirements:

_____ (Glazing Area %) X _____ (Glazing U-Factor) = _____ (Package Glazing Total)

New Glazing Requirements:

_____ (Glazing Area %) X _____ (Glazing U-Factor) = _____ (New Glazing Total)

} *New Glazing Total* must be less than or equal to *Package Glazing Total.*